

3D Corporate Tourism: Application–oriented problem solving in tropical rainforests

Esichaikul R.^{1,*}, Macqueen M.² and Gebeshuber I.C.^{3,4}

¹ School of Management Science, Sukhothai Thammathirat Open University, 9/9 Moo 9 Tambon Bangpood, Amphur Pakkred, Nonthaburi Province 11120, Thailand

² Aramis Technologies, 2 Jalan Alam Sutera 1, Bukit Jalil, 57000 Kuala Lumpur, Malaysia

³ Institute of Microengineering and Nanoelectronics, Universiti Kebangsaan Malaysia, 43600 UKM, Bangi, Selangor, Malaysia

⁴ Institute of Applied Physics, Vienna University of Technology, Wiedner Hauptstrasse 8-10/134, 1040 Wien, Austria

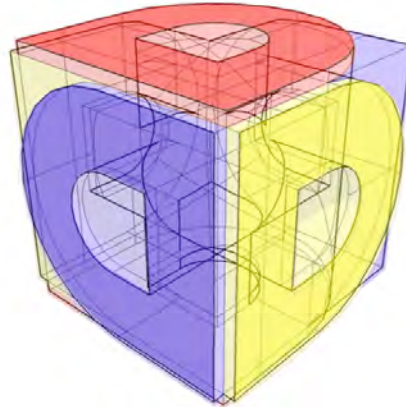
* Corresponding author: esichai@yahoo.com, msaseran@stou.ac.th

Keywords innovation, science, engineering, design, niche tourism

3D Corporate Tourism, a solution–based approach to innovation in science, engineering and design, is proposed [1][2]. The three main pillars of this integrated concept are discover, *develop* and **design**. In 3D Corporate Tourism, biologists, scientists, engineers and designers jointly work in an environment with high inspirational potential and construct initial prototypes and designs directly on site. This joint approach yields new links, networks and collaborations between communities of thinkers in different countries in order to stimulate and enhance creative and application–oriented problem solving for society.

Nature’s materials are complex, multi–functional, hierarchical and responsive, and in most cases far better than man made materials. Biomimicry and biomimetics deal with knowledge transfer from nature to technology and design. Increasingly, collaborations across fields prove successful [3][4] and are highly useful for innovation [5]. 3D Tourism aims at mapping new frontiers in emerging and developing engineering and design areas. It provides a novel way to foster and promote innovative thinking in the sciences, and considers the need for synergy and collaboration between biology, engineering and materials science rather than segmentation and isolation: Supported by specially trained biologists, scientists, engineers as well as designers apply the Biomimicry Innovation Method (© Biomimicry Guild, Helena, MT, USA 2008) in an environment with high inspirational potential and discover, develop and design complex nanomaterials inspired by nature. Directly at the site of this research, first prototypes and designs are constructed, and first detailed investigations take place. The 3D concept (for logo, see Figure) has been inspired by the ‘Biomimicry and Design Workshops’ (offered for one week per year, location: rainforest in Peru or in Costa Rica) by the US based Biomimicry Guild. Companies such as Boeing, Colgate–Palmolive, General Electric, Levi’s, NASA, Nike and Procter and Gamble have already used their services.

With 3D Corporate Tourism, the successful concept of the ‘Biomimicry and Design Workshops’ is developed further into a complete niche tourism concept. The outcome of such a joint effort are – besides the research results, developments and designs – new links, networks and collaborations between communities of thinkers in different countries in order to stimulate and enhance creative and application–oriented problem solving for society.



Logo of 3D Corporate Tourism

The high species variety in the rainforest, with nature’s “best practices” everywhere aids to relate structure with function in natural materials, structures and processes and helps to increase awareness about the natural resources surrounding us. With the concept of “3D Corporate Tourism” the potential of the virgin rainforests is used in a sustainable way, without exploiting the natural resources or removing anything else from the jungle apart from ideas. In this way, the value of the virgin forests is increasing in the minds of policy makers and threshold countries have the opportunity to contribute highly valued inputs to the international research and development elite, as well as train their local experts in very important future technologies. The possibility to perform first investigations directly on–site, and subsequent deeper and more detailed investigations at the home institution fosters collaborations and results in synergistic effects across borders.

References

1. Gebeshuber I.C. and Majlis B.Y. ‘[3D corporate tourism: A concept for innovation in nanomaterials engineering](#)’, Int. J. Mat. Eng. Innov., [arXiv:1001.1109](#), submitted
2. Menon P.S., Adam J.H., Shaari S., Matin T.R. and Gebeshuber I.C. ‘3D corporate tourism: a concept for innovation in nanomaterials engineering’, Proc. 2nd ISESCO Workshop IWCN2010, submitted
3. Gebeshuber, I.C. and Drack, M. (2008) ‘[An attempt to reveal synergies between biology and engineering mechanics](#)’, Proc. IMechE Part C: J. Mech. Eng. Sci. 222(7), pp. 1281–1287.
4. Gebeshuber, I.C. *et al.* (2010) ‘Bacilli, green algae, diatoms and red blood cells – how nanobiotechnological research inspires architecture’, Chapter IX in: Zhou Y. (Ed.), *Bio-Inspired Nanomaterials and Nanotechnology*, New York, USA: Nova Science Publishers, in press.
5. Gebeshuber, I.C., Gruber, P. and Drack, M. (2009) ‘[A gaze into the crystal ball – biomimetics in the year 2059](#)’, *Proceedings of the Institution of Mechanical Engineers Part C: Journal of Mechanical Engineering Science*, Vol. 223, No. 12, pp. 2899–2918.
6. Gebeshuber, I.C. *et al.* (2009) ‘[Exploring the innovational potential of biomimetics for novel 3D MEMS](#)’, *Advanced Materials Research*, Vol. 74, pp. 265–268.

Acknowledgements

The Austrian Society for the Advancement of Plant Sciences funded part of this work via the Biomimetics Pilot Project ‘BioScreen’. Living in the tropics and exposure to high species diversity at frequent excursions to the tropical rainforests is a highly inspirational way to do biomimetics. Profs. F. Aumayr, H. Störi and G. Badurek from the Vienna University of Technology are acknowledged for enabling ICG three years of research in the inspiring environment in Malaysia.